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ABSTRACT

This book of posttests is designed to accompany the Engine Tune-Up Service Student Guide for Unit 3, Primary Circuit, available separately as CE 031 211. Focus of the posttests is setting the primary ignition circuit. One multiple choice posttest is provided, covering the eight performance objectives contained in the unit. (No answer key is provided.) (YLB)

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ENGINE TUNE-UP SERVICE

Unit 3: Primary Circuit

Posttests

Automotive Mechanics
Curriculum

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CE 031 213

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POSTTEST

UNIT 3 FORM A

Directions: Read the situation on the next page carefully. After selecting an answer, record it on your answer sheet in the space provided.

Next, turn to the question listed in parentheses at the end of your answer. For example, if your choice says go to #14, you will answer Question 14 next.

Each time you answer a question, be sure to record on your answer sheet BOTH the question number and your answer. Continue working through the test until you reach the end.

You will be jumping from question to question, and will not have to answer all the questions.

DO NOT MARK ON THIS TEST.

Situation: A 1973 Maverick has been towed into the garage where you work. The owner states that the engine will crank but will not start. When you ask how long the vehicle has been like this, he replies, "Since I tuned it up by the book." Unfortunately, the book was *Auto Repairs for the Totally Inept* (Ripoff Press, Peoria).

1. You would first:
 - a. Check the battery condition (go to #39)
 - b. Strobe the distributor (go to #48)
 - c. Visually inspect the wiring and the engine compartment (go to #29)
 - d. Replace the contact points and condenser (go to #14)
 - e. Replace the coil (go to #63)
 - f. Replace the ignition switch (go to #87)
 - g. Check the contact point dwell (go to #85)
 - h. Check the spark intensity at the coil (go to #57)
2. Before installing a new resistor wire, you should:
 - a. Remove the battery ground cable clamp (go to #25)
 - b. Test the wire with an ammeter (go to #25)
 - c. Test the wire with an ohmmeter (go to #25)
 - d. Test the wire with a continuity tester (go to #25)
3. There is no continuity across the wire. This means:
 - a. The resistor wire is receiving too much primary current (go to #12)
 - b. The resistor wire is receiving too little primary current (go to #12)
 - c. The resistor wire is good (go to #113)
 - d. The resistor wire should be replaced (go to #2)
4. The condenser series resistance reading is 0.0 ohms. You should now:
 - a. Check the points (go to #100)
 - b. Replace the condenser (go to #73)
 - c. Replace the points and condenser (go to #14)
 - d. Make a coil draw test (go to #92)
 - e. Make a coil primary resistance test (go to #98)
 - f. Make a condenser capacity test (go to #59)
 - g. Make a condenser leakage test (go to #91)
5. The engine starts but will not run after the starter switch is released. This means you should:
 - a. Adjust the timing at the cranking speed (go to #95)
 - b. Recheck the contact point dwell (go to #93)
 - c. Adjust the timing, using the static method (go to #74)
 - d. Check the ballast resistor wire (go to #74)
 - e. Check the coil primary resistance (go to #102)
 - f. Check the coil secondary resistance (go to #40)
 - g. Check the ignition switch (go to #103)
6. The final point adjustment is made by using:
 - a. A voltmeter (go to #12)
 - b. An ammeter (go to #12)
 - c. An ohmmeter (go to #12)
 - d. A dwell meter (go to #49)
 - e. Feeler gauges (go to #49)

7. After installing a new condenser, you should:
 - a. Make a primary start test (go to #91)
 - b. Make a primary run test (go to #82)
 - c. Test the coil draw (go to #42)
 - d. Check the ignition switch for excessive resistance (go to #69)
 - e. Make an operational check of engine performance (go to #30)
8. The engine starts and seems to run okay at idle and high RPM. You should now:
 - a. Tell the customer that his car is ready (go to #113)
 - b. Check the engine, using an oscilloscope (go to #95)
9. The ignition switch operation appears to be okay. You should now:
 - a. Check the primary start voltage output (go to #91)
 - b. Check the primary run voltage output (go to #82)
 - c. Strobe the distributor (go to #32)
 - d. Tell the customer that the car is ready (go to # 113)
 - e. Prepare the repair bill, and then tell the customer that the car is ready (go to # 112)
 - f. Make an operational check of engine performance (go to #55)
10. One good method for disabling the ignition is to:
 - a. Remove the high-tension wires from the spark plugs (go to #54)
 - b. Remove the distributor primary lead and ground it (to to # 54)
 - c. Remove the positive coil primary lead and tape it (go to # 54)
 - d. Remove the high-tension wire from the center of the distributor cap and tape it (go to #54)
11. The results of the condenser leakage test are bad. You should now:
 - a. Replace the condenser (go to # 73)
 - b. Make a condenser capacity test (go to #59)
 - c. Make a coil draw test (go to #92)
 - d. Check the contact points (go to #100)
 - e. Make a primary start test (go to #91)
12. An engine that runs roughly at high RPM and smoothly at low RPM is commonly caused by:
 - a. A defective condenser (go to #113)
 - b. Reversed coil polarity (go to #113)
 - c. Incorrect contact point spring tension (go to #113)
 - d. A faulty bypass system (go to #113)
 - e. Poor idle RPM adjustment (go to #113)
13. The voltage reading at the end of the test is 11 volts. You should now:
 - a. Replace the battery (go to #52)
 - b. Charge the battery (go to #77)
 - c. Replace the coil (go to #63)
 - d. Replace the points and condenser (go to #60)
 - e. Test the condenser (go to #28)
 - f. Check the spark intensity at the coil (go to #57)

14. Here are the tune-up specifications for a 1973 Ford 6-cylinder engine:

DISTRIBUTOR		IGNITION COIL	
Application	Motorcraft Part No.	Motorcraft Part No.	B6A12029B
200 cu. in. Manual Trans.	D3BF-CA, D3DF-BA	Resistance	Ohms @ 75°F
Auto. Trans.	D3DF-AA	Primary	1.40-1.54
250 cu. in. Manual Trans.	D3CF-BA	Secondary	7600-8800
Auto. Trans.	D30F-AA, D30F-RA, D30F-LA	Ballast Resistor Loom	1.3-1.4
		Current Draw (Engine Stopped)	4.5 Amps.
		(Engine Idling)	2.5 Amps.

SPARK PLUGS		DISTRIBUTOR	
Gap	.035"	Point Gap	.027"
Torque	15-20 ft-lbs.	Cam Angle	33-39°
		Breaker Arm Spring Tension	17-21 oz.
		Condenser Capacity	21-25 mfd

SPARK PLUG TYPE	
Application	Autolite No.
200" & 250"	BRF-82

The initial point gap should be set to:

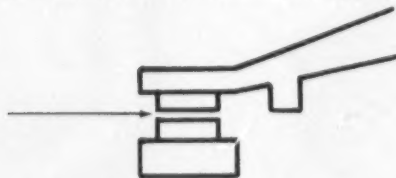
- a. 17 oz. (go to #6)
 - b. .21 mfd (go to #6)
 - c. .027" (go to #6)
 - d. .035" (go to #6)
 - e. .033" (go to #6)
15. Before turning on the distributor tester, you should:
- a. Attach the rotor tightly to the distributor (go to #98)
 - b. Remove the rotor from the distributor (go to #105)
 - c. Ground the condenser (go to #27)
 - d. Insulate the condenser from the ground (go to #27)
16. When replacing a coil, the (-) terminal on the coil is where you should connect:
- a. The distributor primary wire (go to # 62)
 - b. The high-tension cable (go to #62)
 - c. The battery primary lead (go to #62)
 - d. The ballast resistor wire (go to #62)
17. The battery rating is 55 amps. This means that the correct load to place on the battery is:
- a. 55 amps for 15 seconds (go to #86)
 - b. 110 amps for 15 seconds (go to #13)
 - c. 165 amps for 15 seconds (go to #39)
 - d. 55 amps for 30 seconds (go to #13)
 - e. 110 amps for 30 seconds (go to #70)
 - f. 165 amps for 30 seconds (go to #84)

18. The vacuum unit is a dual diaphragm mechanism. In order to correct faulty vacuum retard, you should:
 - a. Adjust the unit (go to #12)
 - b. Replace the unit (go to #51)
19. The distributor is installed in the vehicle. You should now:
 - a. Adjust the engine timing (go to #49)
 - b. Hook up the oscilloscope to the engine (go to #110)
 - c. Tell the customer that the car is ready (go to #113)
 - d. Write out the repair bill, and then tell the customer his car is ready (go to #112)
20. While cranking the engine, you notice that no spark is present at the distributor end of the coil high-tension lead. This means you should check:
 - a. The battery capacity (go to #17)
 - b. The contact points (go to #60)
 - c. The ballast resistor wire (go to #65)
 - d. The coil primary resistance (go to #98)
 - e. The coil secondary resistance (go to #80)
21. In order to verify that a replacement coil is the correct one for the vehicle, you should check:
 - a. The size of the new coil against the old coil (go to #113)
 - b. The manufacturer's specifications in a technical service manual or parts manual (go to #113)
 - c. The vehicle owner's manual (go to #113)
22. You cannot reach the actuator rod. You should first:
 - a. Remove the steering wheel (go to #106)
 - b. Drop the steering column (go to #94)
 - c. Remove the fuse block from the vehicle (go to #109)
 - d. Remove the key lock mechanism (go to #109)
23. The series resistance reading is 0.0 ohms. You should now:
 - a. Replace the condenser (go to #73)
 - b. Check the contact points (go to #100)
 - c. Replace the points and condenser (go to #14)
 - d. Make a condenser leakage test (go to #11)
 - e. Make a condenser capacity test (go to #59)
 - f. Make a coil draw test (go to #92)
24. After tightening the distributor hold-down bolt and reconnecting the vacuum line, you should:
 - a. Tell the customer that the car is ready (go to #113)
 - b. Prepare a repair bill, and then tell the customer that his car is ready (go to #113)
 - c. Make an operational check of engine performance (go to #8)
 - d. Check the engine, using an oscilloscope (go to #95)
25. To test a newly installed resistor wire, you should use:
 - a. The primary start voltage output test (go to #91)
 - b. The primary run voltage output test (go to #82)
 - c. The coil primary resistance test (go to #71)
 - d. The operational check of engine performance (go to #30)

26. The coil secondary resistance is 7,500 ohms. You should now:

- a. Test the condenser (go to #28)
- b. Make the coil draw test (go to #92)
- c. Replace the coil (go to #63)
- d. Make the primary start test (go to #91)
- e. Make the primary run test (go to #82)

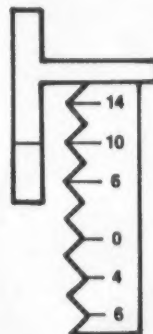
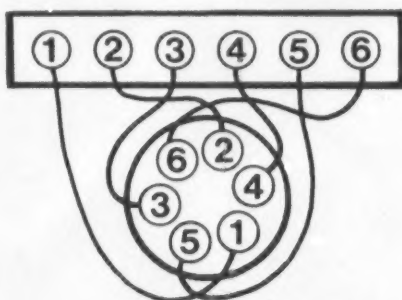
27. To determine whether the condenser is good, you inspect the points. A contact point looks like this:



You can tell that the condenser:

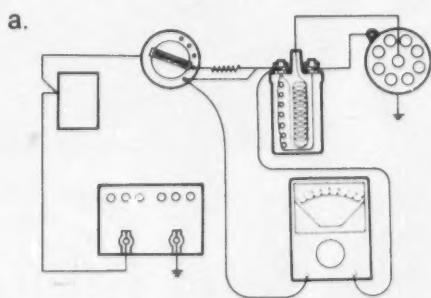
- a. Has too much capacity for the vehicle (go to #113)
 - b. Has too little capacity for the vehicle (go to #113)
 - c. Has the correct capacity for the vehicle (go to #113)
 - d. Is defective (go to #113)
28. When testing the condenser with the distributor on the engine, you should make sure that:
- a. The ignition has been disabled (go to #10)
 - b. The contact points are open (go to #54)
 - c. The contact points are closed (go to #23)
29. All the wiring appears to be okay, the battery looks good, and all parts seem to be connected. You should now:
- a. Check the spark intensity at the coil (go to #57)
 - b. Check the contact point dwell (go to #85)
 - c. Strobe the distributor (go to #48)
 - d. Replace the contact points and condenser (go to #14)
30. The engine cranks but does not start. You should now:
- a. Strobe the distributor (go to #48)
 - b. Check the contact points (go to #100)
 - c. Replace the ignition switch (go to #87)
 - d. Perform the primary run voltage output test (go to #82)
 - e. Perform the coil draw test (go to #92)
31. In order to double-check your hookups, you should:
- a. Consult the instruction manual for the starter switch (go to #20)
 - b. Consult the Society of Automotive Engineers Standards Manual (go to #20)
 - c. Consult a technical service manual (go to #20)
 - d. Consult the vehicle owner's manual (go to #20)
32. In order to properly attach the distributor to the distributor tester, you should:
- a. Tighten the clamp around the shaft (go to #15)
 - b. Make sure the drive gear bottoms in the tester chuck (go to #15)
 - c. Tighten the clamp around the distributor body (go to #15)
 - d. Remove the vacuum advance unit before mounting the distributor (go to #15)

33. After you have replaced the coil, you should:
- Make an operational check of the engine (go to #46)
 - Hook up an oscilloscope to the engine (go to #101)
 - Check the contact points (go to #60)
 - Check the ballast resistor wire (go to #65)
 - Check the condenser (go to #28)
34. The engine starts, but stops when the ignition key is released. You should:
- Check the ignition switch (go to #103)
 - Check the ballast resistor wire (go to #74)
 - Replace the fuse block in the vehicle (go to #12)
 - Check the coil primary resistance (go to #102)
35. The proper engine timing is 6° BTDC. The present timing is pictured below. What should be done to properly adjust the timing?

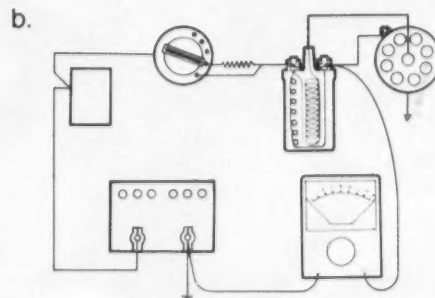


- Reduce point dwell by 4° (go to #41)
 - Increase point dwell by 4° (go to #41)
 - Turn the distributor body clockwise to the proper timing (go to #24)
 - Turn the distributor body counterclockwise to the proper timing (go to #24)
36. The condenser series resistance reading is 0.0 ohms. You should now:
- Make a condenser leakage test (go to #11)
 - Make a condenser capacity test (go to #59)
 - Make a coil draw test (go to #92)
 - Make a coil primary resistance test (go to #98)
 - Check the points (go to #100)
 - Replace the condenser (go to #73)
 - Replace the points and condenser (go to #14)
37. When assembling a distributor and installing a new shaft, you should also:
- Install a new cam (go to #12)
 - Install a new drive gear (go to #12)
 - Install a new bushing (go to #12)
 - Install new mechanical advance springs (go to #12)

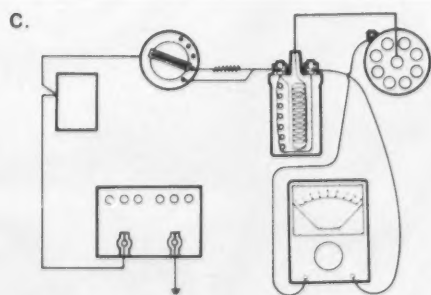
38. The voltage output reading for the primary start test is 12.6 volts. You should now:
- Make a primary run test (go to #82)
 - Replace the coil (go to #63)
 - Replace the ballast resistor wire (go to #78)
 - Check the condenser (go to #28)
 - Check the engine timing (go to #88)
39. The battery voltage is 10.0 volts after the battery voltage test. You should now:
- Replace the battery (go to #52)
 - Charge the battery (go to #77)
 - Visually inspect the wiring and the engine compartment (go to #29)
 - Replace the coil (go to #63)
 - Check the spark intensity at the coil (go to #57)
 - Replace the points and condenser (go to #60)
40. The coil secondary resistance is 7,500 ohms. You should now:
- Replace the coil (go to #16)
 - Make a primary start test (go to #38)
 - Make a primary run test (go to #45)
 - Test the condenser (go to #66)
 - Check the ballast resistor wire (go to #74)
41. The proper step-by-step procedure for timing can be found:
- In the vehicle owner's manual (go to #24)
 - In a technical service manual (go to #24)
 - In the oscilloscope manufacturer's instruction book (go to #24)
42. Circle the correct letter. Which of the following hookups should you use to measure coil draw?



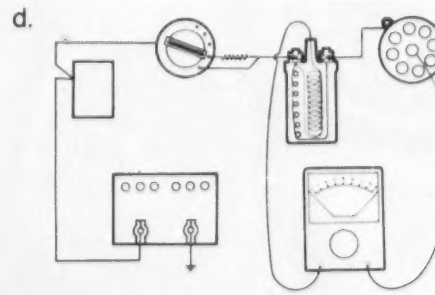
(go to #12)



(go to #56)

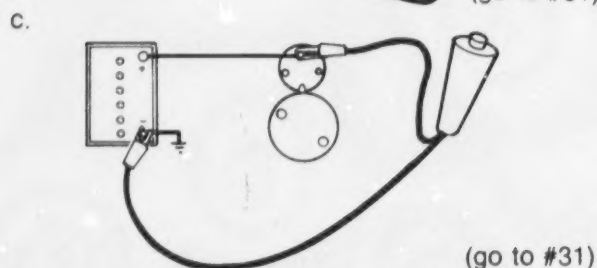
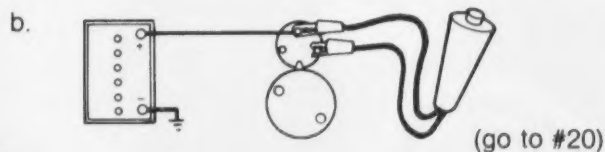
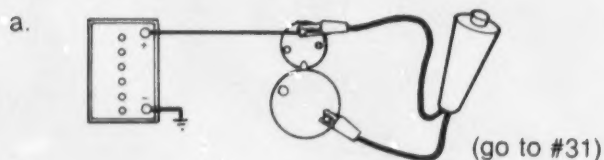


(go to #12)



(go to #12)

43. The high-tension cable does not fit onto the (-) terminal on the coil. You should now:
- Get another coil, since the one you have is not the correct replacement (go to #21)
 - Fit an adapter to the high-tension wire (go to #108)
 - Find the proper hook-up in a technical service manual (go to #97)
 - Hook up the high-tension cable to the (+) terminal (go to #108)
44. Circle the correct letter. Which of the following hookups would you use to connect a remote starter switch?

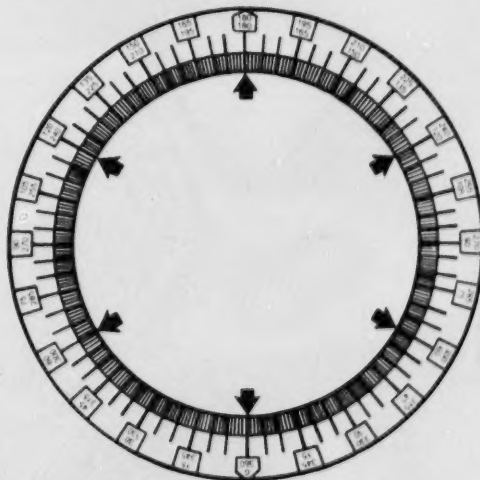


45. The voltage output reading for the primary run test is 0.0 volts. You should now:
- Check the battery (go to #12)
 - Tell the customer that the car is ready (go to #113)
 - Check the ballast resistor wire (go to #74)
46. The engine cranks but does not start. You should now:
- Replace the coil (go to #63)
 - Replace the condenser (go to #73)
 - Strobe the distributor (go to # 48)
 - Replace the ignition switch (go to # 87)
 - Test the coil primary resistance (go to #98)
 - Check the contact points (go to #60)
47. The contact point dwell meets specifications. You should now:
- Check the contact point alignment (go to #75)
 - Install the distributor in the vehicle (go to #64)
 - Check for dwell variation and cam lobe accuracy (go to #68)
 - Make sure the advance mechanism is functioning properly (go to #79)
48. Before removing the distributor, you should:
- Remove the hold-down bolt and turn the rotor to line up with the #1 cylinder (go to #32)
 - Remove the cap and the rotor (go to #32)
 - Crank the engine until the timing marks align and the rotor points to the #1 cylinder (go to #32)
 - Remove the battery ground cable clamp (go to #32)

49. After the final checks of contact point alignment, tension, and dwell, you should:
- Tell the customer that the car is ready (go to #113)
 - Write out the repair bill, and then tell the customer that the car is ready (go to #113)
 - Adjust the engine timing (go to #5)
 - Adjust the vacuum advance unit (go to #18)
 - Hook up the oscilloscope to the engine (go to #110)
50. The distributor tester shows that the condenser is good. You should now:
- Check the contact point dwell (go to #107)
 - Check the contact point resistance (go to #12)
 - Check for dwell variation and cam lobe accuracy (go to #68)
 - Make sure the advance mechanism is functioning properly (go to #79)
51. A good vacuum advance unit should:
- Hold up to 15 in. Hg of vacuum (go to #12)
 - Let flow up to 15 in. Hg of vacuum (go to #12)
52. The new battery is installed. You should now:
- Replace the coil (go to #63)
 - Make the coil primary resistance test (go to #98)
 - Test the condenser (go to #28)
 - Replace the points and the condenser (go to #60)
 - Make an operational check of the engine (go to #46)
53. What is the first step in installing a column-type ignition switch?
- Align the actuator rod with the ignition switch hole (go to #69)
 - Mount the ignition switch on the column (go to #69)
 - Connect all ignition wires (go to #69)
 - Clamp the column bracket to the underside of the dash (go to #69)
 - Turn the ignition key to the *lock* position (go to #69)
54. A proper series resistance reading for a condenser is:
- 0.0 ohms (go to #89)
 - 7,500 ohms (go to #111)
 - .25 mfd (go to #36)
 - 21 mfd (go to #4)
55. The engine cranks well but does not start. You should now:
- Strobe the distributor (go to #32)
 - Check the primary run voltage output (go to #82)
 - Check the primary start voltage output (go to #91)
 - Check the ballast resistor wire (go to #65)
 - Check the battery capacity (go to #113)
56. Where can you obtain the specifications for proper functioning of the coil?
- National Association of Coil Engineers Handbook (go to #113)
 - The vehicle owner's manual (go to #113)
 - The Society of Automotive Engineers Standards Manual (go to #113)
 - A technical service manual (go to #113)

57. While pulling out the high-tension lead at the distributor, you notice that the primary wire from the distributor is attached to the (+) lead of the coil. This means you should:
- Reverse the coil polarity (go to #44)
 - Leave the coil connections as they are (go to #44)
 - Make a coil primary resistance test (go to #98)
 - Make a coil secondary resistance test (go to #80)
58. When removing the main wiring harness, you should first:
- Disconnect the leads from all relay switches (go to #109)
 - Remove the battery ground cable clamp (go to #109)
 - Remove the fuse block from the vehicle (go to #109)
 - De-solder all connections at the clamps (go to #109)
59. The condenser capacity test results are far below specifications. You should:
- Replace the condenser (go to #73)
 - Make a coil capacity test (go to #92)
 - Check the contact points (go to #100)
 - Check the ballast resistor wire (go to #65)
 - Make a primary start test (go to #91)
60. The contact points are gray and show no pitting. The distributor cam is bright and clean. The rubbing block is very worn. The cause of these conditions is:
- A worn distributor shaft (go to #48)
 - Worn distributor bushings (go to #48)
 - The lack of proper cam lubrication (go to #83)
 - Faulty contact points (go to #83)
 - A faulty breaker plate assembly (go to #48)
 - A faulty condenser (go to #28)
61. In order to double-check your hookups, you should:
- Consult a technical service manual (go to #113)
 - Consult the vehicle owner's manual (go to #113)
 - Consult the Society of Automotive Engineers Standards Manual (go to #113)
 - Consult the equipment manufacturer's instruction manual (go to #113)
62. After the new coil is correctly installed, you should:
- Check the ballast resistor wire (go to #74)
 - Check the primary start voltage output (go to #38)
 - Check the primary run voltage output (go to #45)
 - Check the condenser (go to #66)
 - Make an operational check of the engine (go to #34)
63. When replacing a coil, the (-) terminal on the coil is always connected to:
- The distributor primary wire (go to #33)
 - The high-tension wire (go to #43)
 - The battery primary lead (go to #33)
 - The ballast resistor wire (go to #33)

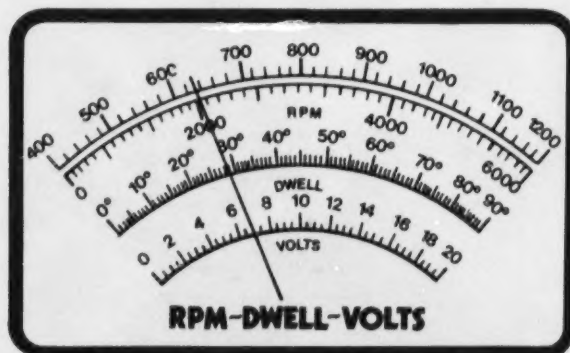
64. When installing a distributor in a vehicle, you should:
- Make sure the timing marks align and the #1 cylinder is on the compression stroke (go to #19)
 - Make sure the timing marks align and the rotor points away from the #1 cylinder (go to #19)
 - Make sure the distributor rotor points toward the vacuum advance unit (go to #19)
 - Make sure the distributor rotor points away from the vacuum advance unit (go to #19)
65. The ohmmeter reading shows that the ballast resistor wire has infinite resistance. You should now:
- Replace the ballast resistor wire (go to #2)
 - Make a voltage drop test across the wire (go to #96)
 - Make a continuity test across the wire (go to #3)
 - Leave the wire as it is, and check the condenser (go to #28)
 - Leave the wire as it is, and check the contact points (go to #12)
66. When testing the condenser with the distributor in the engine, you should make sure that:
- The ignition is disabled (go to #81)
 - The contact points are closed (go to #81)
 - The contact points are open (go to #81)
67. The car will now start. The proper sequence for adjusting the engine timing is:
- Set the timing, and adjust the idle speed (go to #35)
 - Set the idle speed, and adjust the timing (go to #35)
 - Set the timing, and adjust the idle speed; then reset the timing (go to #35)
 - Set the idle speed, and adjust the timing; then reset the idle speed (go to #35)
68. While the distributor is turning at 1,000 RPM, the following reading appears on the distributor tester:



You should now:

- Install the distributor in the vehicle (go to #64)
- Replace the distributor shaft (go to #37)
- Replace the distributor cam (go to #37)
- Overhaul the entire distributor (go to #37)
- Replace the condenser (go to #12)

69. Which is the best method for checking the ignition switch for excessive resistance?
- Using an ammeter, measure the amperage drawn through the switch (go to #9)
 - Using an ohmmeter, measure the resistance across the switch terminal (go to #9)
 - Using a voltmeter, measure the voltage drop through the switch (go to #9)
70. The voltage reading at the end of the test is 8.9 volts. You should now:
- Replace the battery (go to #52)
 - Charge the battery (go to #77)
 - Replace the coil (go to #63)
 - Replace the points and condenser (go to #60)
 - Test the condenser (go to #28)
 - Check the spark intensity at the coil (go to #57)
71. The coil resistance is 1.5 ohms. You should now:
- Replace the coil (go to #63)
 - Test the condenser (go to #28)
 - Make a coil draw test (go to #92)
 - Make a primary start test (go to #91)
 - Make a primary run test (go to #82)
72. The dwell meter shows the following reading:



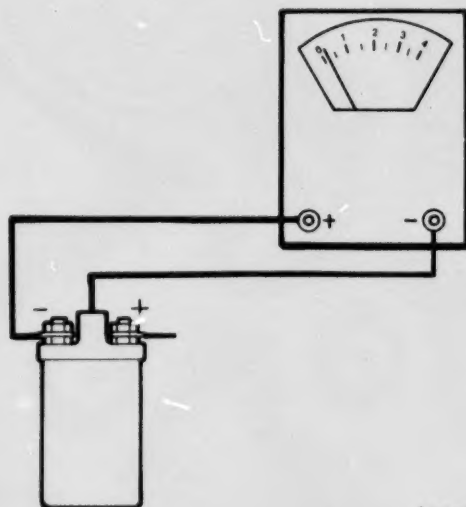
The specifications for this engine are 33°-39°. You should now:

- Widen the point gap (go to #49)
 - Narrow the point gap (go to #49)
 - Inspect the points (go to #60)
 - Turn the distributor body clockwise (go to #12)
 - Turn the distributor body counterclockwise (go to #12)
73. When replacing a condenser while the distributor is in the engine, you should:
- Disable the ignition (go to #7)
 - Disconnect the distributor primary wire (go to #7)
 - Make sure the points are closed (go to #7)
 - Place rags into the breaker plate holes (go to #7)

74. Upon checking ballast resistor wire, you find it has infinite resistance. You should now:
- Reinstall the wire and make sure the connections are tight (go to #12)
 - Replace the wire with a new one (go to #67)
 - Install an 18-gauge wire to replace the resistor wire (go to #67)
75. The contact point alignment seems to be okay visually. You should now:
- Check the points alignment at 1,000 RPM (go to #104)
 - Install the distributor in the vehicle (go to #64)
 - Check cam lobe accuracy (go to #68)
 - Overhaul the entire distributor (go to #37)
76. The engine will crank but will not start. You should now:
- Set the timing by the static method (go to #12)
 - Check the contact points (go to #100)
 - Check the primary run voltage output (go to #82)
 - Strobe the distributor (go to #48)
 - Perform a coil draw test (go to #92)
77. The battery is freshly charged and connected in the car. You should now:
- Replace the coil (go to #63)
 - Make a coil primary resistance test (go to #98)
 - Test the condenser (go to #28)
 - Replace the points and condenser (go to #60)
 - Make an operational check of the engine (go to #46)
78. The resistor loom in this vehicle is located outside of the main wiring harness. This means that:
- The entire wiring harness must also be replaced (go to #58)
 - The resistor wire is not replaceable (go to #58)
 - The resistor wire is replaceable (go to #2)
 - The wire should be tested before removal and replacement (go to #65)
79. The advance mechanism appears to be functioning properly. You should now:
- Check the condenser (go to #50)
 - Check for cam lobe accuracy (go to #68)
 - Check the contact point dwell (go to #107)
 - Install the distributor in the vehicle (go to #64)
 - Replace the distributor shaft (go to #37)
 - Overhaul the entire distributor (go to #37)

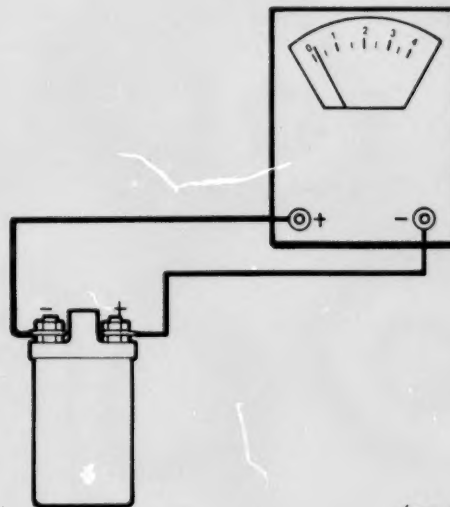
80. Circle the correct letter. Which of the following hookups should you use to make a coil secondary resistance test?

a.



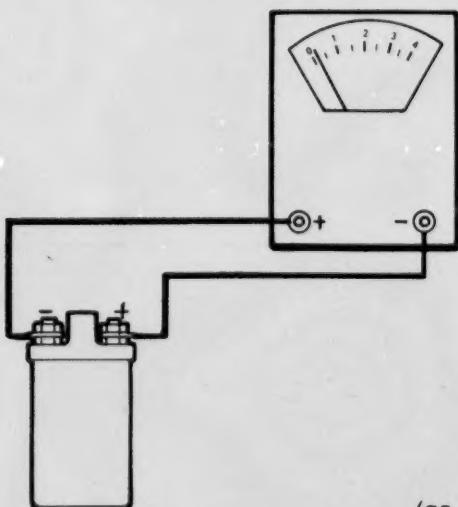
(go to #26)

b.



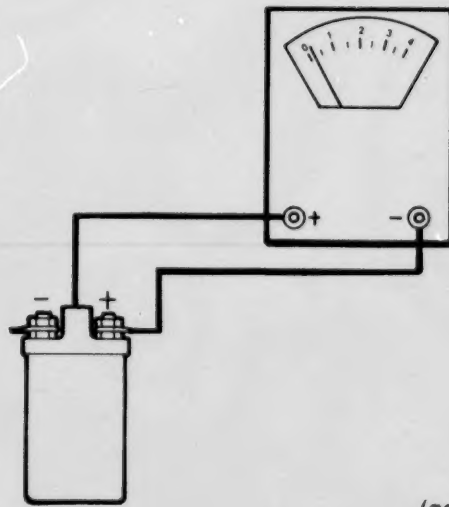
(go to #71)

c.



(go to #71)

d.

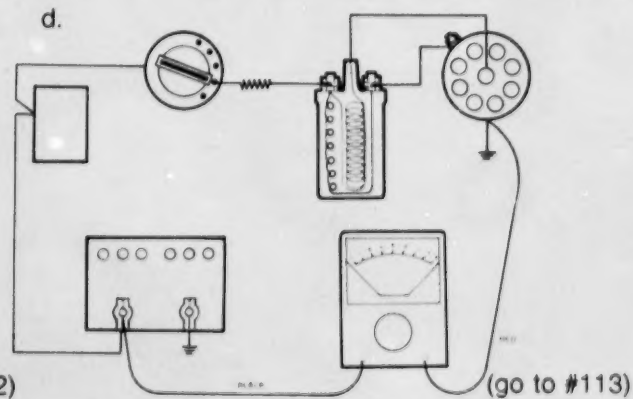
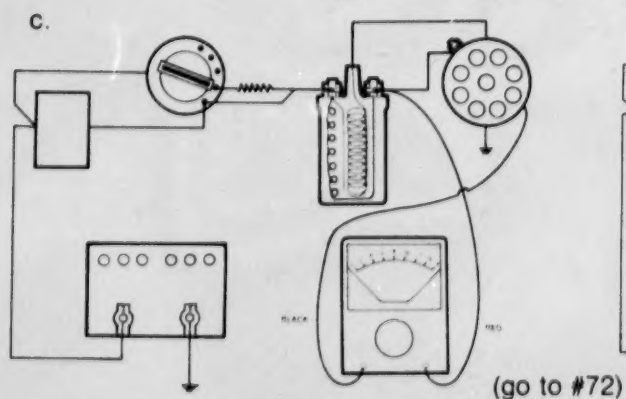
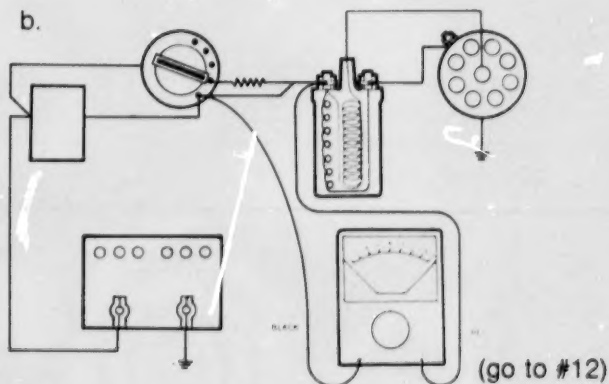
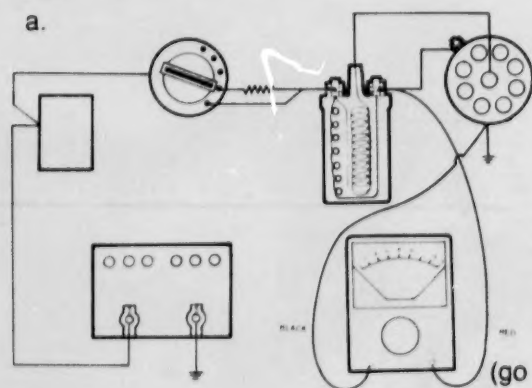


(go to #26)

81. The condenser operation is okay. You should now:

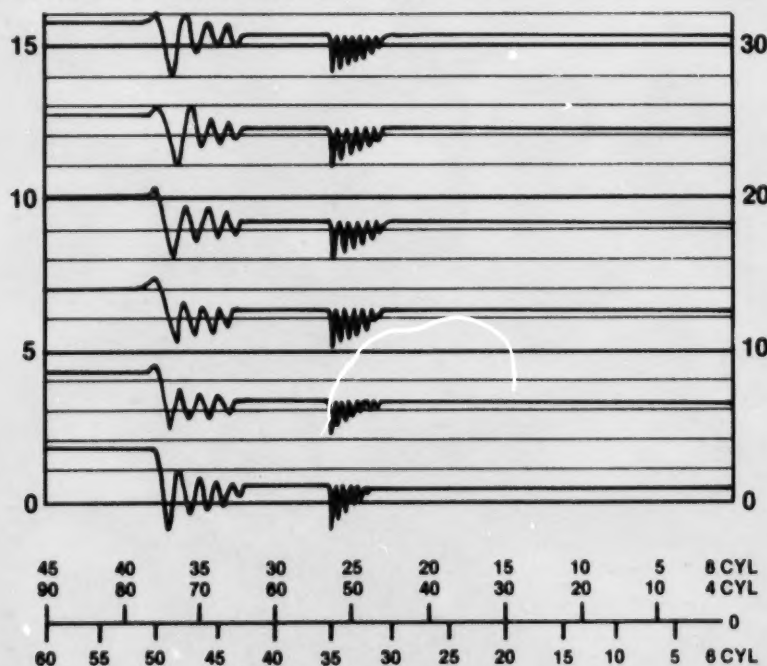
- Check the primary run voltage output (go to #45)
- Check the primary start voltage output (go to #38)
- Check ballast resistor wire (go to #74)
- Tell the customer that the car is ready (go to #113)
- Write out a repair bill, and then tell the customer that the car is ready (go to #113)

82. The voltage output reading for the primary run test is 0.0 volts. You should now:
- Check elsewhere, since the primary circuit is good (go to #113)
 - Check the contact points (go to #100)
 - Check the condenser (go to #54)
 - Check the ballast resistor wire (go to #65)
83. Given the condition of the contact points, the best procedure is to:
- Reset the point gap to specifications, and lubricate the distributor cam (go to #14)
 - Test the condenser, and lubricate the distributor cam (go to #28)
 - Replace the points, and lubricate the distributor cam (go to #14)
 - Replace the condenser, and lubricate the distributor cam (go to #73)
 - Replace the points and condenser, and lubricate the distributor cam (go to #14)
84. The voltage reading at the end of the test is 7.0 volts. You should now:
- Replace the battery (go to #52)
 - Charge the battery (go to #77)
 - Replace the coil (go to #63)
 - Replace the points and condenser (go to #60)
 - Test the condenser (go to #28)
 - Check the spark intensity at the coil (go to #57)
85. Circle the correct letter. Which of the following hookups should you use to check the contact point dwell?



86. The voltage reading at the end of the test is 12.4 volts. You should now:
- Replace the battery (go to #52)
 - Charge the battery (go to #77)
 - Replace the coil (go to #63)
 - Replace the points and condenser (go to #60)
 - Test the condenser (go to #28)
 - Check the spark intensity at the coil (go to #57)
87. Before removing the column-type ignition switch, you should first:
- Pull off the steering wheel (go to #106)
 - Remove the battery ground cable clamp (go to #53)
 - Remove the actuator rod (go to #22)
 - Drop the steering column (go to #94)
88. The proper sequence for adjusting the engine timing is:
- Set the timing, and adjust the idle speed (go to #76)
 - Set the idle speed, and adjust the timing (go to #76)
 - Adjust the timing, and set the idle speed; then reset the timing (go to #76)
 - Set the idle speed, and adjust the timing; then reset the idle speed (go to #76)
89. The condenser series resistance reading is 0.0 ohms. You should now:
- Replace the condenser (go to #73)
 - Check the points (go to #100)
 - Replace the points and condenser (go to #14)
 - Make a condenser leakage test (go to #11)
 - Make a condenser capacity test (go to #59)
 - Make a coil draw test (go to #92)
 - Make a coil primary resistance test (go to #98)
90. The ignition switch appears to be okay. You should now:
- Tell the customer that the car is ready (go to #113)
 - Write out a repair bill, and then tell the customer that the car is ready (go to #113)
 - Make an operational check of the engine (go to #55)
 - Check the primary run voltage output (go to #82)
 - Check the ballast resistor wire (go to #74)
 - Consult the customer's book (go to #113)
91. The voltage output reading for the primary start test is 12.6 volts. You should now:
- Make a primary run test (go to #82)
 - Replace the coil (go to #63)
 - Replace the ballast resistor wire (go to #78)
 - Replace the condenser (go to #71)
 - Check the contact points (go to #60)
 - Check the condenser (go to #28)
 - Check the engine timing (go to #88)
 - Check the spark intensity at the coil (go to #20)

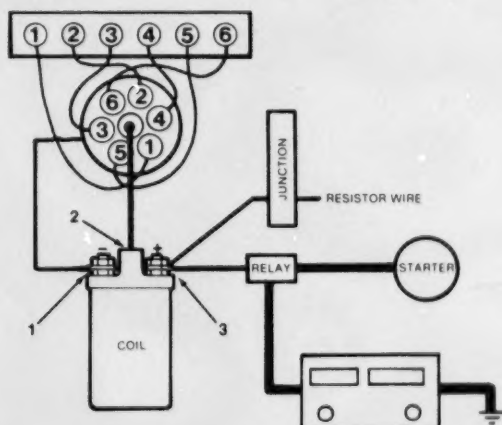
92. Testing the coil for current draw can be performed:
- Only when the engine is running at idle speed (go to #42)
 - Only when the engine is running at high speed (go to #42)
 - Only when the engine is stopped (go to #42)
 - Only when the coil is out of the vehicle (go to #56)
 - When the engine is stopped and is at idle speed (go to #42)
93. The contact point dwell is set to specifications. You should now:
- Check the ignition switch (go to #103)
 - Check the coil primary resistance (go to #102)
 - Check the coil secondary resistance (go to #40)
 - Check the ballast resistor wire (go to #74)
94. The steering column is lowered by first:
- Removing the key lock mechanism (go to #109)
 - Removing the column bracket (go to #53)
 - Removing the steering wheel (go to #106)
 - Removing the cover at the lower end of the column (go to #53)
95. The oscilloscope gives the following raster pattern:



This pattern shows that:

- The engine is working properly (go to #113)
- The condenser is not properly grounded (go to #113)
- The coil polarity is reversed (go to #113)
- The distributor shaft or bushings are worn (go to #113)
- There are loose or corroded connections in the circuit (go to #113)
- The scope is not hooked up properly (go to #113)

96. The voltage drop test reading is 12.2 volts. This means that:
- The resistor wire is good (go to #113)
 - The resistor wire should be replaced (go to #2)
 - The resistor wire is receiving too much primary current (go to #12)
 - The resistor wire is receiving too little primary circuit (go to #12)
97. Here is a portion of the wiring diagram for the engine.

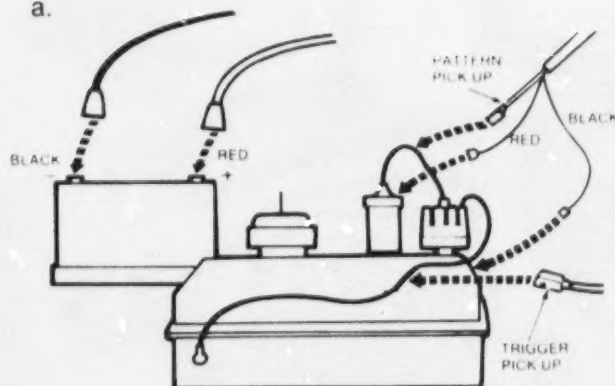


You should connect the high tension cable to which terminal:

- 1 (go to #108)
 - 2 (go to #33)
 - 3 (go to #108)
98. The results of the coil primary resistance test show 1.4 ohms resistance. You should now:
- Replace the coil (go to #63)
 - Replace the ballast resistor wire (go to #78)
 - Test the coil secondary resistance (go to #80)
 - Test the condenser (go to #28)
 - Check the points and condenser (go to #60)
99. The engine will not start. The manufacturer's specification for the timing speed is 600 RPM. You should now:
- Check the coil primary resistance (go to #102)
 - Check the coil secondary resistance (go to #40)
 - Check the ballast resistor wire (go to #74)
 - Make the primary run voltage output test (go to #45)
 - Make the primary start voltage output test (go to #38)
 - Check the ignition switch (go to #103)
100. The contact points are gray, and show no pitting. The distributor cam is bright and clean. The rubbing block is very worn. You should:
- Reset the point gap to specifications, and lubricate the distributor cam (go to #49)
 - Replace the condenser, and lubricate the distributor cam (go to #7)
 - Replace the points, and lubricate the distributor cam (go to #49)
 - Replace the points and condenser, and lubricate the distributor cam (go to #49)
 - Strobe the distributor (go to #32)

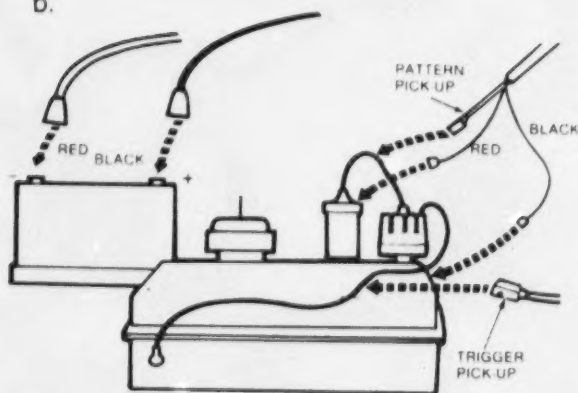
101. Circle the correct letter. Which of the following hookups should you use to connect an oscilloscope?

a.



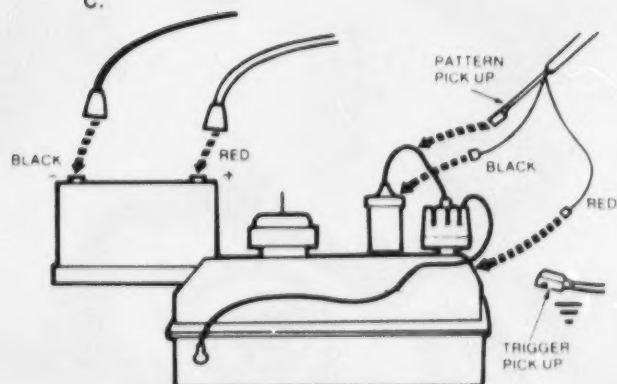
(go to #12)

b.



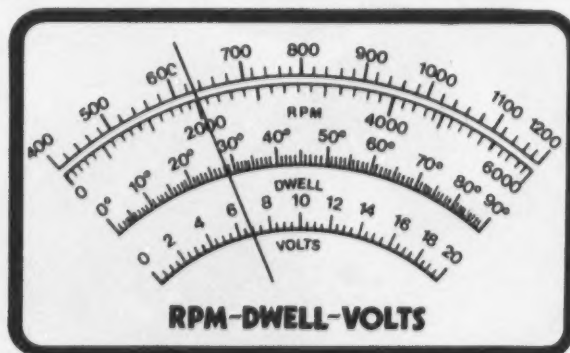
(go to #113)

c.



(go to #61)

- 102.** The results of the coil primary resistance test show 1.4 ohms resistance. You should now:
- Replace the coil (go to #16)
 - Check the ballast resistor wire (go to #74)
 - Test the condenser (go to #66)
 - Make the coil secondary resistance test (go to #40)
- 103.** What is the best way to check the ignition switch for excessive resistance?
- Using an ammeter, measure the amperage drawn through the switch (go to #90)
 - Using a voltmeter, measure the resistance across the switch terminals (go to #90)
 - Using a voltmeter, measure the voltage drop through the switch (go to #90)
- 104.** The contact point alignment at 1,000 RPM appears to be good. You should now:
- Install the distributor in the vehicle (go to #64)
 - Overhaul the entire distributor (go to #37)
 - Check cam lobe accuracy (go to #68)
 - Replace the condenser (go to #12)
- 105.** The shaft, breaker plate, and bushings appear to be okay. The cam is bright and dry. The points are gray, and the rubbing block is worn. You should now:
- Check the condenser (go to #50)
 - Check for dwell variation and cam lobe accuracy (go to #68)
 - Check for proper functioning of the advance mechanism (go to #79)
 - Check the contact point dwell (go to #107)
- 106.** You can find the directions for removing a steering wheel in:
- The vehicle owner's manual (go to #113)
 - A technical service manual (go to #113)
 - The tool manufacturer's catalog (go to #113)
 - The vehicle manufacturer's shop manual (go to #113)
- 107.** The contact point dwell meter shows the following reading:



Specifications for this engine are 33°-39°. You should now:

- Widen the point gap (go to #12)
- Narrow the point gap (go to #47)
- Replace the points and condenser, and set the gap wider (go to #12)
- Replace the points and condenser, and set the gap narrower (go to #47)

108. In order to double-check your hookup, you should:

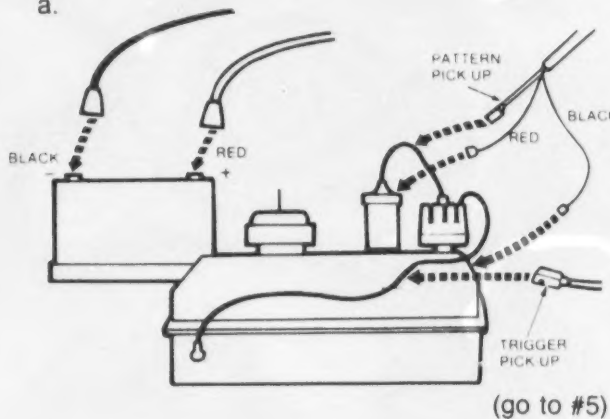
- Make an operational check of the engine and coil (go to #113)
- Consult a technical service manual (go to #113)
- Hook up an oscilloscope to the engine (go to #113)

109. The instructions for removing the key lock mechanism from the vehicle can be found in:

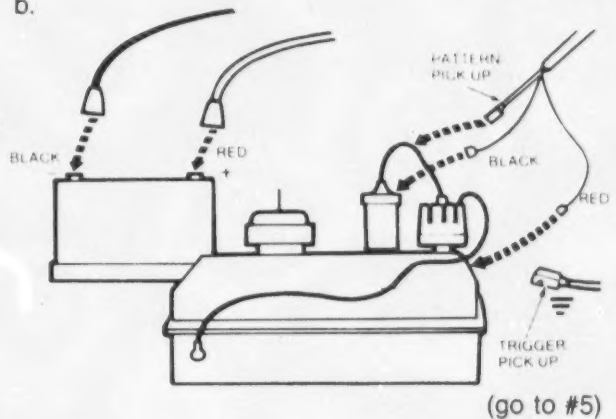
- A technical service manual (go to #113)
- The manufacturer's wiring diagrams (go to #113)
- The vehicle owner's manual (go to #113)
- The manufacturer's flat-rate manual (go to #113)

110. Circle the correct letter. Which of the following hookups should you use to attach an oscilloscope to the engine?

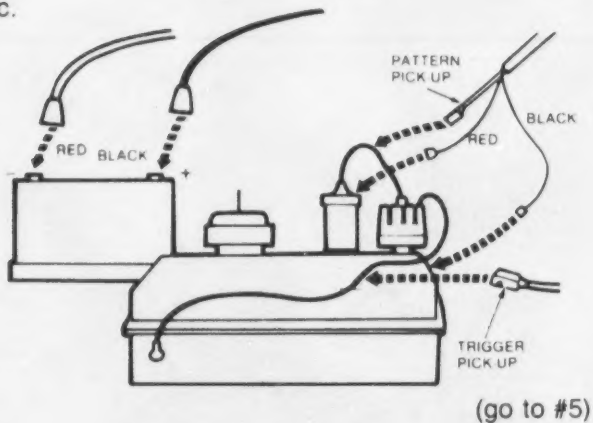
a.



b.



c.



111. The condenser series resistance reading is 0.0 ohms. You should now:

- a. Make a coil draw test (go to #92)
- b. Make a coil primary resistance test (go to #98)
- c. Replace the condenser (go to #73)
- d. Replace the points and condenser (go to #14)
- e. Check the points (go to #100)
- f. Make a condenser leakage test (go to #72)
- g. Make a condenser capacity test (go to #59)

112. The coil draw is 2.5 amps at idle, and 4.5 amps at *off*. You should now:

- a. Replace the coil (go to #109)
- b. Check the ballast resistor wire (go to #65)
- c. Make a primary start voltage output test (go to #38)
- d. Make a primary run voltage output test (go to #45)
- e. Check the contact points (go to #105)

113. **STOP.** You have completed this activity. Give this test and your answer sheet to your instructor.